IFW AF 1764

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: J. Yong Ryu et al.	§	Atty. File: CDT 1694
Serial No.: 10/071,341	§	Group Art Unit: 1764
Filed: 02/08/02	§	Examiner: W. D. Griffin

For: Process for the Conversion of Mixed C_4 and C_5 Streams to Motor Fuel

Commissioner for Patents
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TRANSMITTAL

[X] REPLY BRIEF (in triplicate)

Respectfully submitted,

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Date: 04/27/04

CERTIFICATE OF MAILING

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on 04/27/04

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	§	Atty File: CDT 1694
Ryu et al	§	
	§	
Serial No.: 10/071,341	§	Group Art Unit: 1764
	§	
Filed: 02/08/2002	§	Examiner: W. D. Griffin

For: PROCESS FOR THE CONVERSION OF MIXED C4 AND C5 STREAMS TO MOTOR FUEL

REPLY BRIEF

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This paper is presented in response the to EXAMINER'S ANSWER mailed on April 6, 2004, to answer the examiner's new points of arguments that (1)the effluent from Allender's dehydrogenation zone would contain diolefins and that (2) the selective hydrogenation of the dienes in dehydrogenation of the Vora reference occurs outside the dehydrogenation zone.

1. Allender and Diolefins

Whether the effluent from Allender's dehydrogenation zone contains diolefins is irrelevant, since Allender particularly teaches that by using his process *hydrogenation is not necessary*. See page 2, left column line 69 -right column, line 14. Allender teaches that because the iso and normal alkanes are separated and only the normal alkanes subjected to dehydrogenation, as in applicants' invention, then no hydrogenation is necessary. See page 2 right column at lines 5-14. A claimed method which involves doing what the reference tries to avoid is the very antithesis of obviousness. *In re Buehler*, 185 USPQ 781(CCPA 1975). In other words, Allender teaches NO hydrogenation, thus it can

not teach hydrogenation as the examiner urges.

2. Vora's Hydrogenation Location

From the specification of Vora it appears the dehydrogenation zone comprises everything within the FIGURE. As noted in the specification the selective hydrogenation is placed in a special location between the product separator and the product stripper. The dehydrogenation zone of the present invention is contained within the block designated by the reference numeral 2 in applicants' FIGURE. While not specifically described it is obvious that the product stripper, if any, is located within the block since the hydrogen produced is shown exiting from the block 2 by the flow line 21 while the dehydrogenated product exits by flow line 23. In the alternative applicants' invention may not utilize a product stripper at all but a simple flash separator to remove the hydrogen. The selective hydrogenation of applicants' invention is located outside the block 2 in the block designated by the reference numeral 4 which is after the stripper or dehydrogenation zone of Vora. Vora thus teaches that a product stripper is part of the dehydrogenation zone and that the selective hydrogenation of the dienes must occur before the stripper. Vora also teaches the opposite of using a separate selective hydrogenation zone at column 5 lines 3-33.

3. Conclusion

Vora does not teach anything about the alkylation or the use of the olefins produced by its process. Vora only casually mentions that diolefins may be undesirable in the effluent because they react differently than monoolefins. The primary reference, Allender, does not mention that diolefins are undesirable in the alkylation reaction. There is no evidence of record (other than applicants disclosure) that diolefins are undesirable in the claimed reaction and thus the examiner had provided his own incentive to make the

combination. Allender specifically teaches that hydrogenation is not used. Thus the teachings of Allender would, of necessity, preclude the combination with Vora and the examiner's *prima facie* case for obviousness must fail.

Respectfully Submitted,

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